

Dual Shield 7100 Ultra

Like many other Dual Shield products, Dual Shield 7100 Ultra operates in a wider parameter range and generates less welding fumes than many similar welding wires. The low spatter levels and easy slag removal minimizes post weld cleanup. Dual Shield 7100 Ultra can be used with either 100% CO₂ or 75% Ar/25% CO₂. This versatility in gas selection provides the fabricator greater flexibility in choosing both wire and gas. Applications include railcar and earth moving equipment, as well as general structural steel fabrication.

Classifications	AWS A5.20 : E71T-9M-DH8 AWS A5.20 : E71T-1C-DH8 AWS A5.36 : E71T1-C1A2-CS1-DH8 AWS A5.36 : E71T1-M21-CS1-DH8 AWS A5.20 : E71T-1M-DH8 AWS A5.20 : E71T-9C-DH8 ASME SFA 5.36 ASME SFA 5.20
Approvals	BV DNV-GL LR ABS CWB CSA W48; E491T-9-H8 E491T-9M-H8

Approvals are based on factory location. Please contact ESAB for more information.

Welding Current	DC+
Alloy Type	C Mn

Typical Tensile Properties

Condition	Yield Strength	Tensile Strength	Elongation
100% CO₂			
As Welded	515 MPa (75 ksi)	585 MPa (85 ksi)	26 %
75% Ar - 25% CO₂			
As Welded	540 MPa (78 ksi)	605 MPa (88 ksi)	26 %

Typical Charpy V-Notch Properties

Condition	Testing Temperature	Impact Value
75% Ar - 25% CO₂		
As Welded	-18 °C (0 °F)	57 J (42 ft-lb)
As Welded	-29 °C (-20 °F)	47 J (35 ft-lb)
100% CO₂		
As Welded	-18 °C (0 °F)	58 J (43 ft-lb)
As Welded	-29 °C (-20 °F)	34 J (25 ft-lb)

Typical Weld Metal Analysis %

C	Mn	Si	S	P
0.02	1.3	0.5	0.013	0.010

Deposition Data

Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate	Deposition Efficiency %
100% CO₂					
1.2 mm (.045 in.)	192 A	25.5 V	762 cm/min (300 in./min)	2.5 kg/h (5.5 lb/h)	79 %
1.2 mm (.045 in.)	230 A	27 V	1016 cm/min (400 in./min)	3.3 kg/h (7.4 lb/h)	82 %
1.2 mm (.045 in.)	275 A	28.5 V	1270 cm/min (500 in./min)	4.4 kg/h (9.6 lb/h)	83 %
1.4 mm (.052 in.)	150 A	23.5 V	381 cm/min (150 in./min)	1.6 kg/h (3.6 lb/h)	76 %
1.4 mm (.052 in.)	190 A	24 V	508 cm/min (200 in./min)	2.2 kg/h (4.9 lb/h)	78 %
1.4 mm (.052 in.)	250 A	25.5 V	762 cm/min (300 in./min)	3.5 kg/h (7.7 lb/h)	82 %
1.4 mm (.052 in.)	300 A	27 V	1016 cm/min (400 in./min)	4.7 kg/h (10.3 lb/h)	83 %

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Deposition Data					
Diameter	Current	Voltage	Wire Feed Speed	Deposition Rate	Deposition Efficiency %
0.9 mm (.035 in.)	105 A	24 V	635 cm/min (250 in./min)	1.3 kg/h (2.8 lb/h)	86 %
0.9 mm (.035 in.)	140 A	25 V	1016 cm/min (400 in./min)	2.1 kg/h (4.6 lb/h)	87 %
0.9 mm (.035 in.)	165 A	25.5 V	1206.5 cm/min (475 in./min)	2.5 kg/h (5.5 lb/h)	88 %
0.9 mm (.035 in.)	185 A	27 V	1397 cm/min (550 in./min)	2.9 kg/h (6.3 lb/h)	88 %
1.6 mm (1/16 in.)	195 A	24 V	381 cm/min (150 in./min)	2.5 kg/h (5.5 lb/h)	85 %
1.6 mm (1/16 in.)	290 A	25.5 V	635 cm/min (250 in./min)	4.2 kg/h (9.2 lb/h)	87 %
1.6 mm (1/16 in.)	325 A	26.5 V	762 cm/min (300 in./min)	4.9 kg/h (10.9 lb/h)	86 %
1.6 mm (1/16 in.)	352 A	27 V	889 cm/min (350 in./min)	6.0 kg/h (13.1 lb/h)	88 %
1.6 mm (1/16 in.)	382 A	28.5 V	1016 cm/min (400 in./min)	6.7 kg/h (14.7 lb/h)	87 %

Recommended Welding Parameters				
Wire Diameter	Current	Voltage	TTW Dist.	Wire Feed Speed
100% CO₂				
0.9 mm (.035 in.)	110-135 A	23-25 V	9.5-12.7 mm (3/8-1/2 in.)	559-838 cm/min (220-330 in./min)
0.9 mm (.035 in.)	135-160 A	24-28 V	12.7-16 mm (1/2-5/8 in.)	838-1118 cm/min (330-440 in./min)
0.9 mm (.035 in.)	160-185 A	26-30 V	16-19 mm (5/8-3/4 in.)	1118-1397 cm/min (440-550 in./min)
1.2 mm (.045 in.)	135-205 A	23-26 V	9.5-12.7 mm (3/8-1/2 in.)	381-660 cm/min (150-260 in./min)
1.2 mm (.045 in.)	205-230 A	25-27 V	12.7-19 mm (1/2-3/4 in.)	660-965 cm/min (260-380 in./min)
1.2 mm (.045 in.)	230-265 A	26-30 V	19-25.4 mm (3/4-1 in.)	965-1321 cm/min (380-520 in./min)
1.4 mm (.052 in.)	125-235 A	23-26 V	12.7-16 mm (1/2-5/8 in.)	279-584 cm/min (110-230 in./min)
1.4 mm (.052 in.)	235-290 A	25-29 V	16-19 mm (5/8-3/4 in.)	584-864 cm/min (230-340 in./min)
1.4 mm (.052 in.)	290-350 A	29-31 V	19-25.4 mm (3/4-1 in.)	864-1194 cm/min (340-470 in./min)
1.6 mm (1/16 in.)	165-270 A	25-28 V	16-19 mm (5/8-3/4 in.)	279-508 cm/min (110-200 in./min)
1.6 mm (1/16 in.)	270-345 A	27-30 V	19-25.4 mm (3/4-1 in.)	508-762 cm/min (200-300 in./min)
1.6 mm (1/16 in.)	345-415 A	28-32 V	25.4-31.75 mm (1-1.25 in.)	762-1067 cm/min (300-420 in./min)
75% Ar - 25% CO₂				
0.9 mm (.035 in.)	115-145 A	23-25 V	9.5-12.7 mm (3/8-1/2 in.)	1118-1397 cm/min (440-550 in./min)
0.9 mm (.035 in.)	145-165 A	24-27 V	12.7-16 mm (1/2-5/8 in.)	1118-1397 cm/min (440-550 in./min)
0.9 mm (.035 in.)	165-190 A	25-30 V	16-19 mm (5/8-3/4 in.)	1118-1397 cm/min (440-550 in./min)
1.2 mm (.045 in.)	130-200 A	22-26 V	9.5-12.7 mm (3/8-1/2 in.)	381-660 cm/min (150-260 in./min)
1.2 mm (.045 in.)	200-225 A	24-27 V	12.7-19 mm (1/2-3/4 in.)	660-965 cm/min (260-380 in./min)
1.2 mm (.045 in.)	225-265 A	27-29 V	19-25.4 mm (3/4-1 in.)	965-1321 cm/min (380-520 in./min)
1.4 mm (.052 in.)	135-250 A	22-26 V	12.7-16 mm (1/2-5/8 in.)	279-584 cm/min (110-230 in./min)
1.4 mm (.052 in.)	250-295 A	25-29 V	16-19 mm (5/8-3/4 in.)	584-864 cm/min (230-340 in./min)



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Wire Diameter	Current	Voltage	TTW Dist.	Wire Feed Speed
1.4 mm (.052 in.)	295-355 A	27-31 V	19-25.4 mm (3/4-1 in.)	864-1194 cm/min (340-470 in./min)
1.6 mm (1/16 in.)	185-285 A	24-28 V	16-19 mm (5/8-3/4 in.)	279-508 cm/min (110-200 in./min)
1.6 mm (1/16 in.)	285-340 A	27-30 V	19-25.4 mm (3/4-1 in.)	508-762 cm/min (200-300 in./min)
1.6 mm (1/16 in.)	340-400 A	28-32 V	25.4-31.75 mm (1-1.25 in.)	762-1067 cm/min (300-420 in./min)